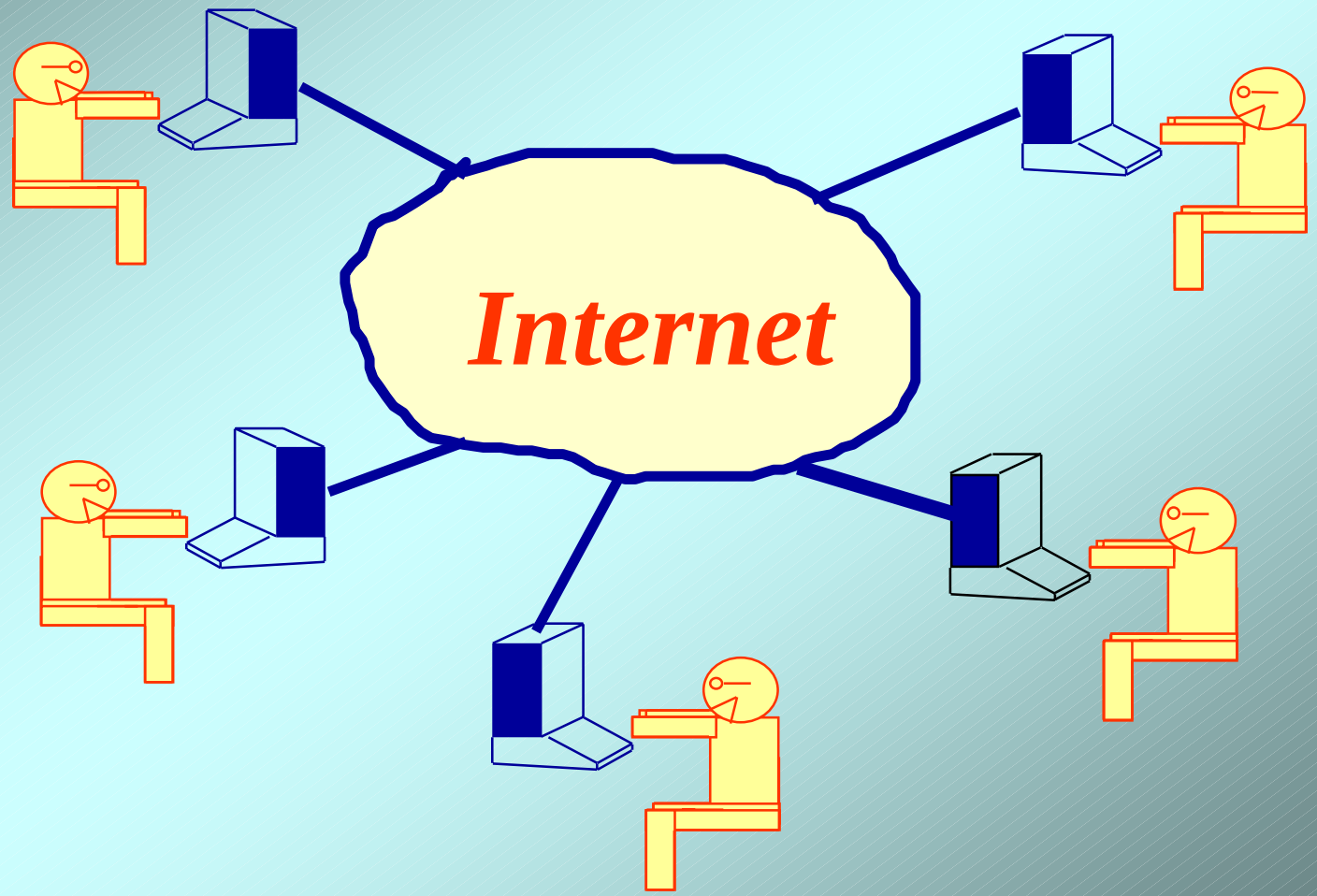
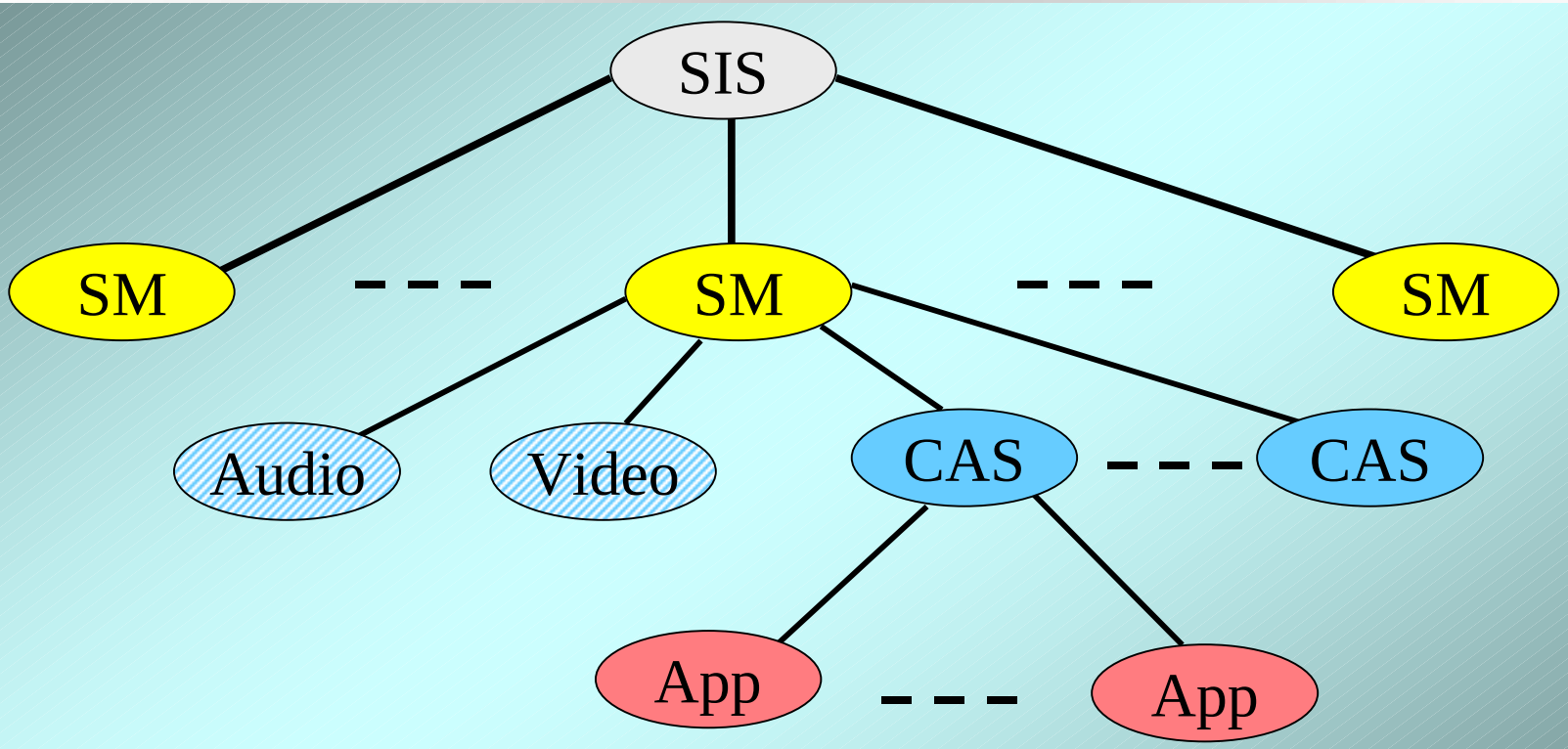
Java-Based Multimedia Collaboration &

Application Sharing Environment

Desktop Conferencing



Architecture



Level 1: Session Information Server
Level 2: Session Manager
Level 3: Multimedia and Collaborative Application Sharing
Level 4: Shared Applications

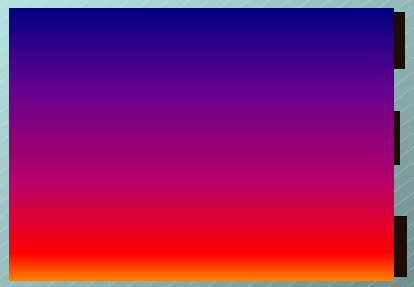
Major Platforms

X Windows/UNIX

MS Windows

McIntoshs

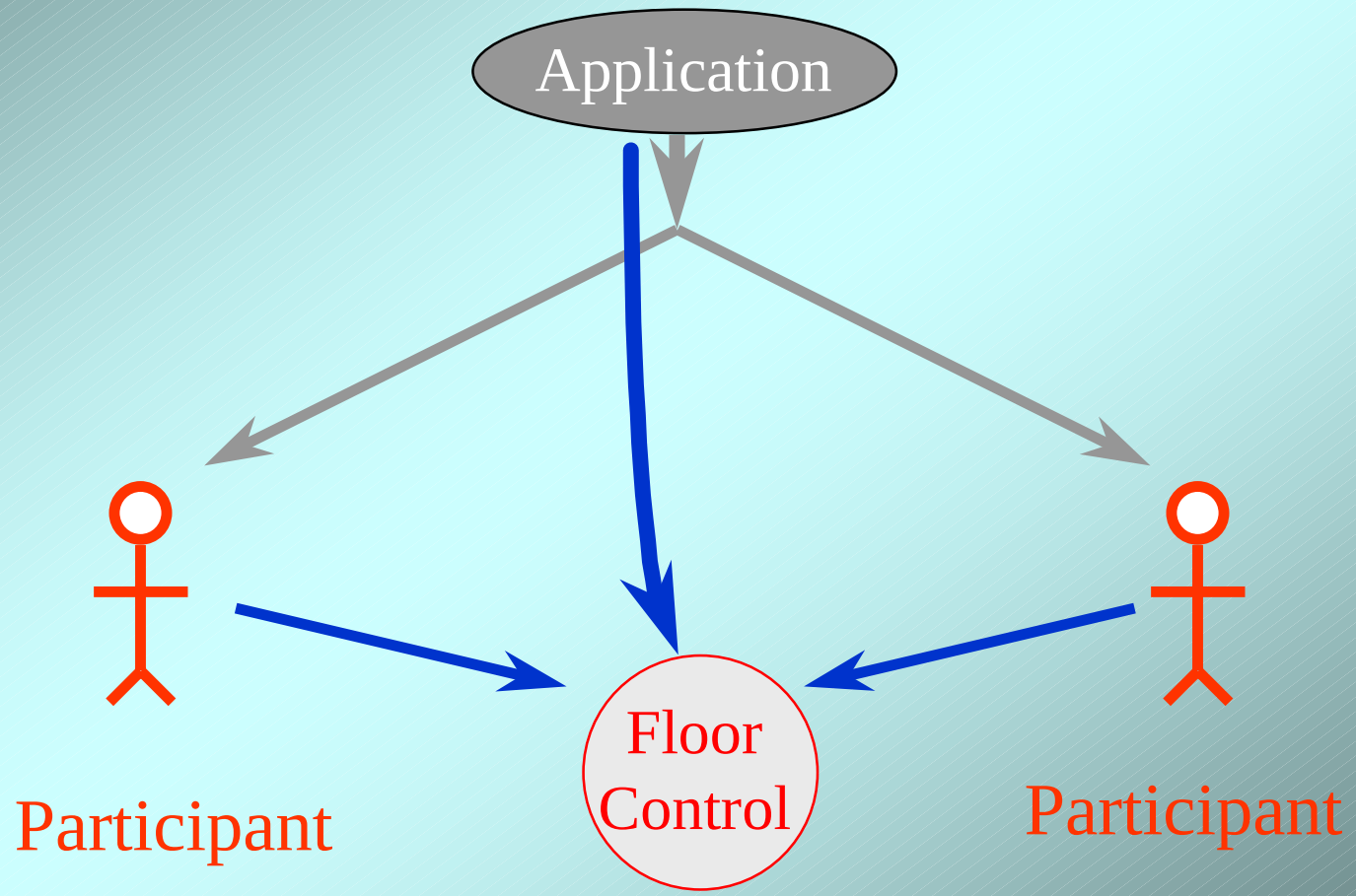
Application Sharing



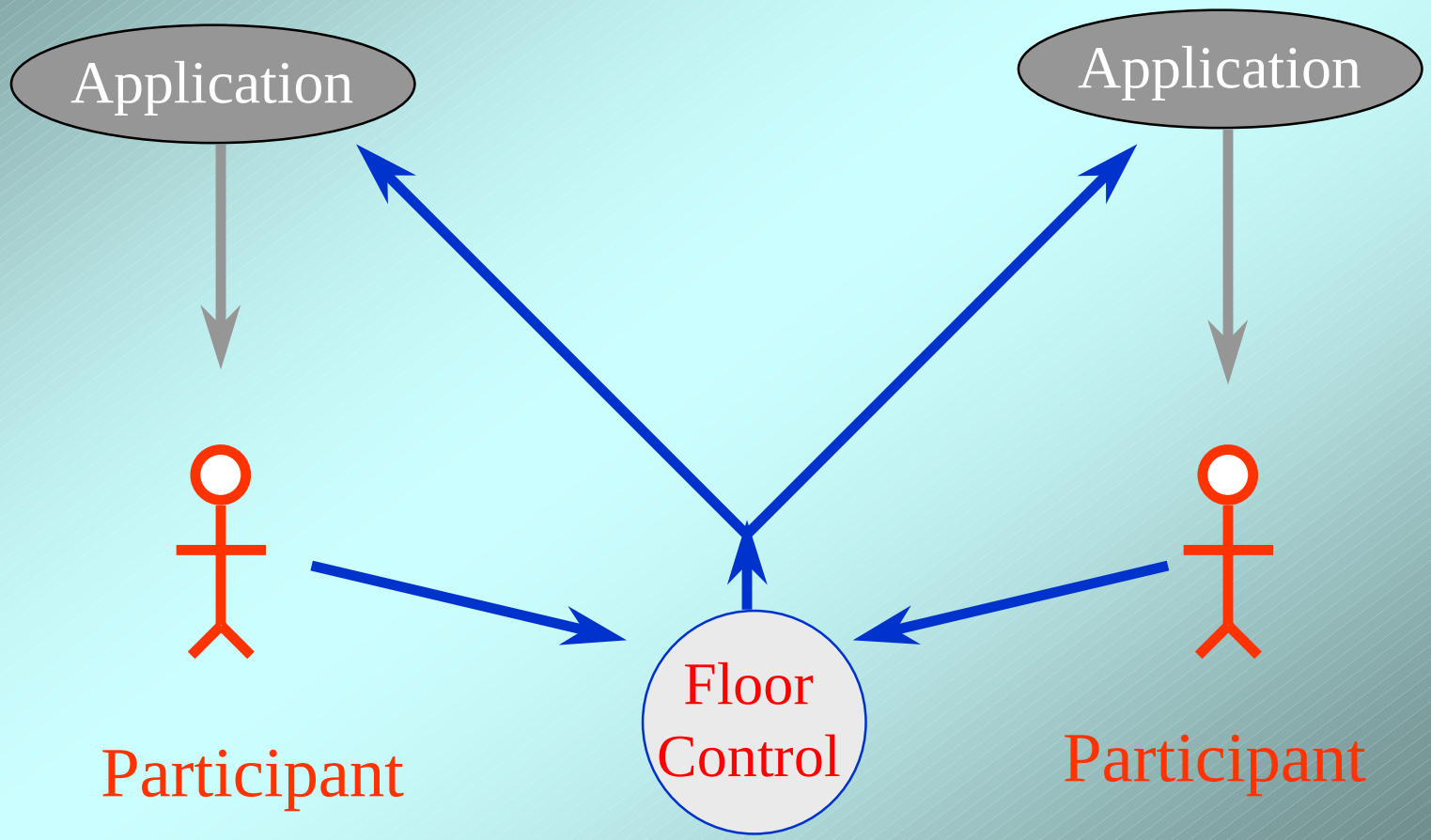
Application Sharing

- Multi-user applications (***Collaboration-Aware***)
  - Examples:
    - White Boards,
    - Chat,
    - Group Editors
- Single-user application sharing (***Collaboration-Naive***)
  - Examples:
    - XTV for sharing X applications (***ODU/UNC***),
    - JCE for sharing Java applications (***ODU/NIST***)

Centralized Architecture

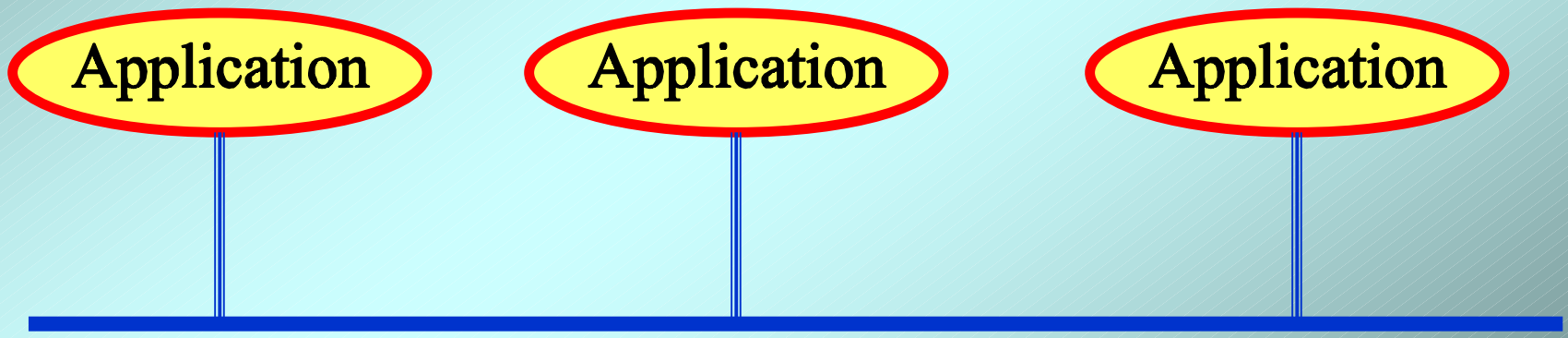


Replicated Architecture

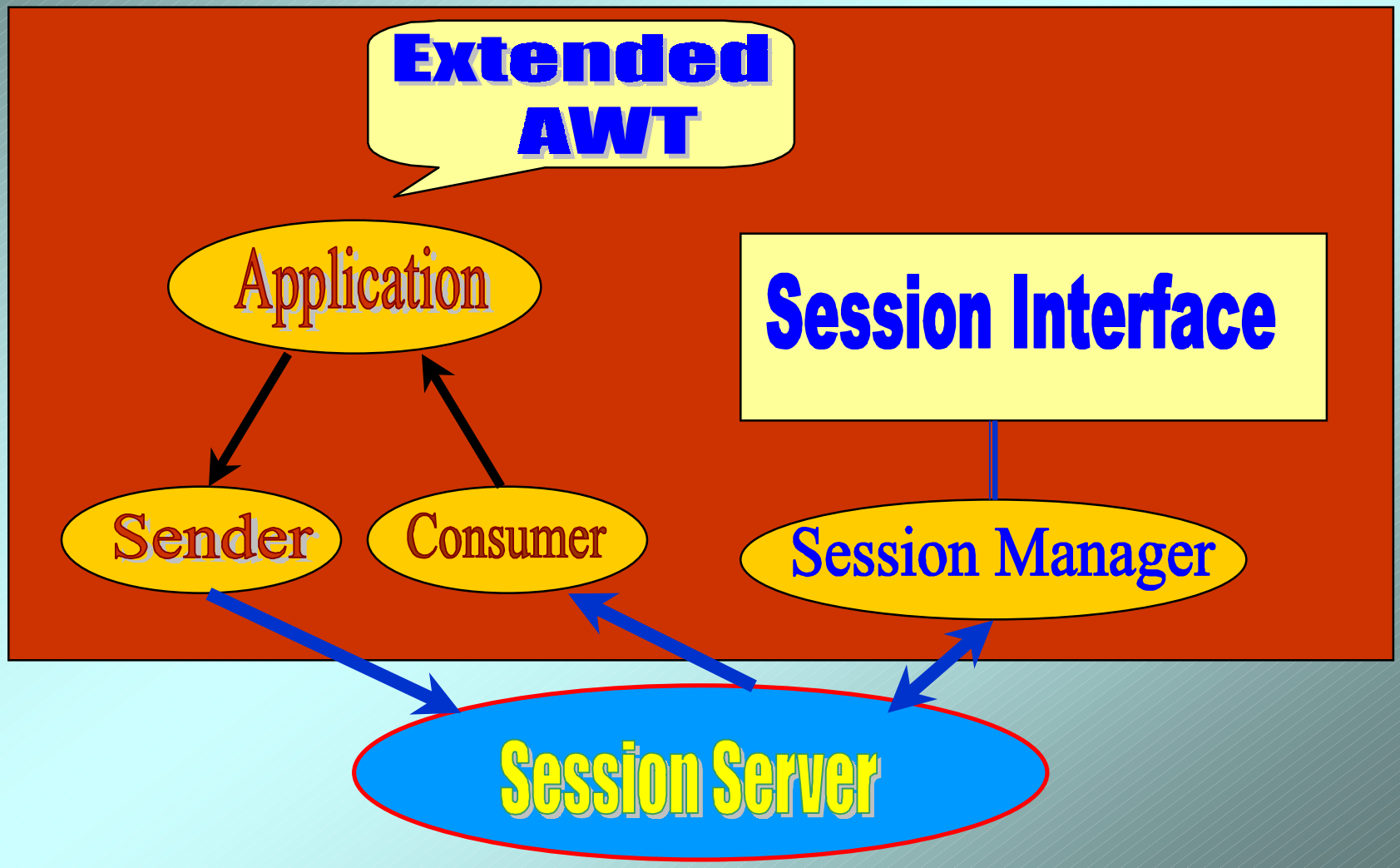


JCE Architecture

Replicated



JCE Components



Replication Management

Environment

Input Objects

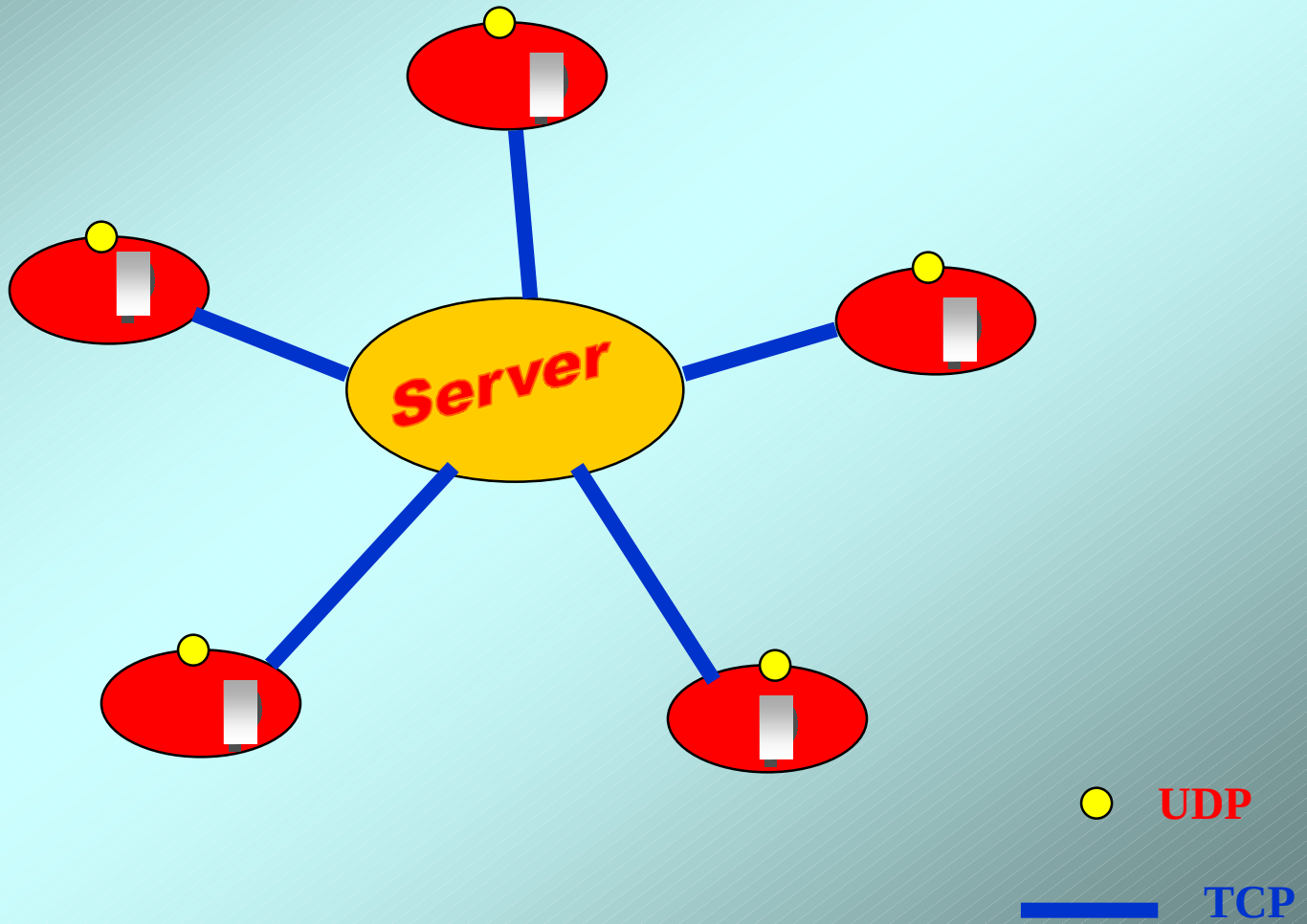
Output Objects

Late Comers

Recording

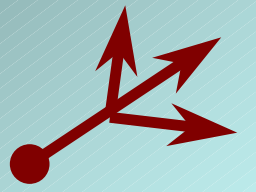
Communication & Distributed Control

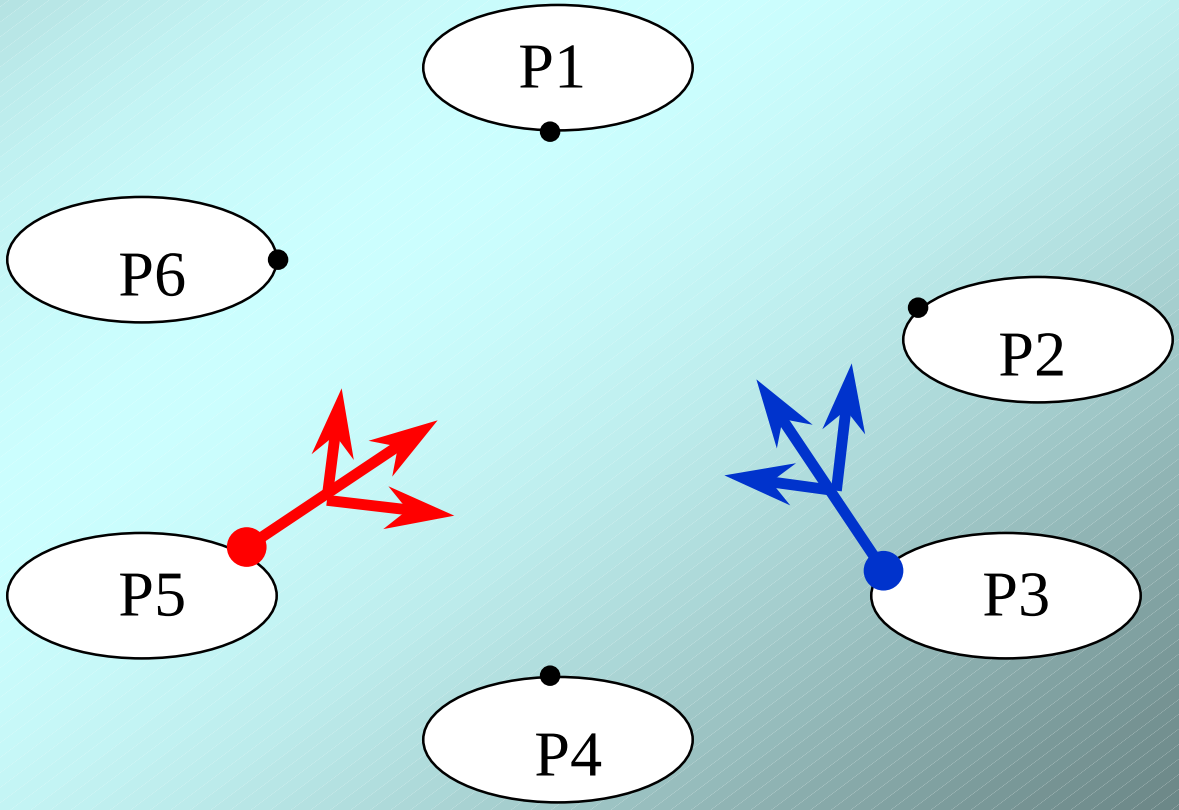
Central Management



Distributed Management

Reliable Multicasting





Audio & Video

Support

View Synchronization

Multi-Stream Synchronization

Inter-Stream

JSDA

- It is part of *Java Media API* to support highly interactive, collaborative, multimedia applications.
- It provides the basic abstraction of
  - Session
  - Multicast message communications ***(based on T.122)***
  - Token-based synchronization mechanism.
  - Share named primitive data elements

JSDA Basic Concepts

- *Sessions:* Join & Leave
- *Channels:* Session-wide multicast addresses
- *Data:* Send & Uniform Send
- *Tokens:* Grab, Please, Release & Non-exclusive-Grab ***(group synchronization)***
- *Observers:* changes in Session, Channel or Token

JSDA Basic Concepts (continue)

- *Consumers:* to receive Data sent over Channel
- *Managers:* to control and authenticate clients wishing to access Session, Channel or Token.
- *Shared Data Primitives*: to create and update simple named data elements shared